Lexington's diverse and far-flung stormwater system drains rainfall and snowmelt from residential areas, commercial districts, and large institutional and industrial facilities. Stormwater pipes, ditches, basins, and ponds – even curbed streets and roads – carry runoff to Fayette County's creeks, where it begins a long journey to the Kentucky, Ohio, and Mississippi rivers and eventually to the Gulf of Mexico.

Paint, wash water, sediment, oil, grease, and other wastes on city streets can enter storm drains and be transported directly to creeks without any treatment.

New requirements for the city's stormwater system seek to minimize flooding and pollutants in the runoff, by promoting infiltration practices, detention or retention of flows, and removal of contaminants through a variety of physical and biological processes. These requirements have been driven by both the federal Consent Decree regarding Lexington's stormwater and sanitary sewer systems and the city's stormwater discharge permit from the Kentucky Division of Water. Included in the stipulations are measures to find and eliminate direct discharges of pollutants to the stormwater system – by monitoring stormwater pipes and ditches during dry periods, inspecting businesses that may handle bulk quantities of pollutants, and sampling creek water for pollutants.

Inspectors from the LFUCG Division of Water Quality investigate and track down the sources of illicit discharges into the storm drain system.

Gabe Hensley, who co-manages the city's Illicit Discharge Detection and Elimination Program, said keeping contaminants out of the stormwater drainage system is a team effort. "We have some great inspectors at the LFUCG Division of Water Quality, and excellent relationships with our sister agencies – like Waste Management, the Fire Department, Emergency Services, LexCall, and Sewer Line Maintenance," he said. "We usually get a dozen or so calls a week about illicit discharges. We try to get out there to take a look as soon as possible, because the sooner you go the better chances you have of tracking down the exact type of discharge and finding the responsible party."

Hensley explained that illicit discharges include "anything that's not stormwater, which is basically rain water and snowmelt." He added that common problems plaguing local creeks include leaves, grass clippings, eroded soil, and more hazardous substances, such as concrete wash water, fuel, oil, and other commercial and industrial wastes. "We've been educating people about how dumping yard wastes and other pollutants into storm drains and

ditches affect water quality," he said. "Most people understand where we're coming from, and are willing to adapt to keep our waterways clean."

For those that don't, there is an enforcement response program. City ordinances state that "no person shall create, cause, continue or authorize an illicit discharge," and prohibit connections to the stormwater system carrying illicit discharges – such as floor drains that may transport oil or antifreeze from auto shops, sink or toilet drains intended for the sanitary sewer, and discharge pipes for commercial or other wastes.

Discharges to concrete flumes, ditches, and storm drains are not permitted unless they contain only clean water.

"The storm drains should only carry clean water," Hensley said. "For example, if you're draining a swimming pool, the ordinance requires that the chlorine concentration be brought down to less than one part per million before discharging to the stormwater collection system. Basically, clean water discharges are okay, but if the discharge contains detergents, dyes, sediment, oil, grease, or other wastes, we have to keep it out of the storm drains."

Hensley and the other Division of Water Quality inspectors have tracked down and stopped illicit discharges from homes, business, and industrial operations. "Recently, we had a fabric dying facility that was discharging its waste tank to a concrete flume that emptied into a retention pond," he said. "In that case, it was pretty easy to track down the source of the very-blue water – you could see the drips from the bucket between the building and the flume. We talked to the owner, and they immediately corrected their disposal practices to prevent future pollution." Other cases involved a stone fabrication business that was piping their rock saw slurry to a storm drain, paint and concrete wash water from construction sites, contaminants from pressure washing, and runoff from salt and mulch piles. "Anytime you're storing something uncovered outside, there's a chance the rain will leach away pollutants," Hensley said, "especially if you're storing it on pavement."

Inspectors are trained to track down illicit discharge sources visually, and through lab analysis if necessary. "We can look at chlorine, detergents, ammonia, bacteria – anything that helps us identify the specific pollutants and locate the source," Hensley said. "Sometimes that means following a ditch or flume, other times we have to pop stormwater manholes upstream until we find out where the discharge is coming from."

And what's the success rate for finding and stopping illicit discharges? "We usually get 100 percent compliance, right away," Hensley said. "Most people want to be environmentally responsible. Education on how to manage wastes and awareness of the ordinances is what we mainly rely on." For the other, more difficult cases, he said, "we have lots of tools in the toolbox."